USGS NSF GRIP Opportunity

USGS Center:	Pacific Island Ecosystems Research Center
Project Title:	Foraging behavior and habitat use of the invasive black rat in mesic montane forests of Hawaii Volcanoes National Park
Project Hypothesis or Objectives:	Rats have profound ecological impacts on islands due to depredation on native birds and other vertebrates, invertebrates, and plants. Black rats (*Rattus rattus*) occur in relatively high densities in mesic, montane forests of Hawaii Volcanoes National Park, where vegetation has been recovering following the removal of introduced browsing ungulates over 25 years ago. Our hypothesis is that removing rats and other invasive predators from these habitats will spur additional recovery of bird, arthropod, and plant communities. The overall objective is to understand how black rat foraging behavior and habitat use affect bird communities and otherwise impede ecosystem recovery in forests of varying vegetation structure and species composition.
Duration:	6-12 months
Internship Location:	Hawaii National Park, Hawaii
Area of Discipline:	Behavior, Vegetation Ecology, Population and Community Ecology
Expected Outcome:	Results will help support critical conservation objectives. The intern will present results at a scientific or conservation conference and lead or co-author a peer-reviewed journal manuscript. The intern will also have opportunities to discuss conservation science and practice as well as career opportunities with federal, state, and NGO researchers and resource managers.
Special skills/training Required:	Skills or training are needed for radio-tagging, tracking, and observing rats at night; bird and plant identification, vegetation analysis using remote sensing data (e.g., Pictometry) and ground survey methods; data management; GPS and GIS; statistical analysis.
Duties/Responsibilities:	The intern will work with USGS and other mentors to design and implement behavioral studies that identify the foraging behavior and habitat use of black rats in terms of physical characteristics of

	foraging substrates and exploitation of animal prey and plant foods. Special attention will be directed to understanding the impacts of rat depredation on nesting and roosting birds and on endangered plant species. Observational studies will be conducted in conjunction with and in support of predator removal from treatment plots that are paired with non-treatment plots. Habitat structure and composition will be determined by a combination of remote image analysis and ground surveys.
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